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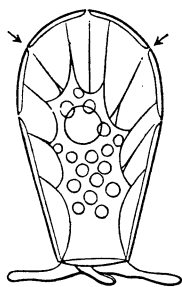
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polyhedral. The particles in section in any direction present a striated appearance, and, according to the varying fineness of the striæ, and their inclination, emit the varied hues for which the precious opal is so much admired.

Observations on Rhizopods.—Prof. LEIDY stated that last July, in the sphagnum swamps of Tobyhanna, Pocono Mt., Monroe Co., Pa., he noticed an abundance of a Rhizopod which he thought he had not previously seen, and which he at first supposed to be an undescribed species, but which he now viewed as a variety of *Hyalosphenia ligata*. From this, as previously described, it differs in the test being of a pale sienna color, and perhaps of greater thickness, but otherwise is like it. The test is compressed pyriform, with the length and breadth nearly or about equal, and the thickness one-half. The lateral borders are obtusely rounded. The mouth is transversely oval. The sarcode is colorless, and attached to the inside of the test by diverging threads. The pseudopods are usually from two to three. Measurements, .08 mm. long and broad, and .036 thick, with the mouth .02 broad and .008 wide. Others varied from .06 long and .08 broad, to .092 long by .064 broad.

In observing the Pocono variety of *Hyalosphenia ligata*, and the beautiful and well-marked species *Hyalosphenia papilio*, he detected an important point of structure which previously had escaped his notice. In the active condition of these, and other Diffugiæ, they are seen with one or more pseudopods extended from the mouth of the test, to the margin of which the sarcode is attached, as well as by diverging threads to various points of the interior of the test. The interval between the body of the sarcode and the interior of the test is occupied with water. The extent of the interval increases with the increase in number and extent of protrusion of the pseudopods, and also varies according to the degree of emptiness or repletion with food of the sarcode body. When the pseudopods are withdrawn into the mouth of the test, the mass of the sarcode expands in a corresponding ratio, and the threads of attachment to the inside of the test contract in length. The intervening water appears to be displaced through small apertures of the lateral borders and fundus of the test, which exist in numbers usually from two to half a dozen or more, as represented in the figure.



Hyalosphenia papilio.
The arrows are directed to two of the apertures through which the water escapes when the animal retracts its pseudopods.

While speaking of Rhizopods, he would ask the indulgence of the Academy to listen to some remarks on recent observations on the habits of several species of Amœba.

One of the species of Amœba which he had most commonly seen, he took to be the

Amœba verrucosa of Ehrenberg, with which the *A. natans* of Perty, and the *A. terricola* of Greef, appeared to him to be synonymous. This species he had found in many places: in the crevices of the brick pavement in the yard attached to his residence, in brick ponds, in the ooze of the rocky shores of the Schuylkill River, in sphagnum swamps, in marsh mud, etc. It is remarkable for its sluggish character; and in appearance reminds one of a little pile of epithelial scales, or fragment of dandruff from the head. Appearing quadrately oval or rounded, transparent, and more or less wrinkled, or marked with delicate wavy lines; the pseudopods rise in short obtuse mammillary eminences or wave-like ridges, the summits of which are composed of transparent ectosarc, while the central portion of the body is occupied by a thin, pale, diffused, and finely granular entosarc. This contains one or more vesicles, usually one, which very slowly enlarges, and then less slowly collapses. In addition, as part of the structure, an oval granular nucleus is sometimes visible. The food contents generally appear not to be abundant, and often the creature appears to be empty of food altogether. The character of its food is the same as with other species of *Amœba*. It not unfrequently feeds on *Diffugi*ans. In a specimen from sphagnum water, from Vineland, N. J., last August, he observed an individual, about the $\frac{1}{10}$ of a millimetre, containing a *Diffugia* and a *Trinema* together. As observed by him, the species ranges from $\frac{1}{25}$ to $\frac{1}{6}$ of a millimetre in diameter.

On the morning of August 27, from some mud adhering to the roots of *Sparganium*, obtained the day previously in a nearly dried-up marsh, at Bristol, Pa., he obtained a drop of material for examination with the microscope. After a few moments he observed an *Amœba verrucosa*, nearly motionless, empty of food, with a large central contractile vesicle, and measuring $\frac{1}{25}$ of a millimetre in diameter. Within a short distance of it, and moving directly towards it, was another and more active *Amœba*, the species of which he was not positive. It was, perhaps, the one described by Dujardin as *A. limax*, by which name, for the present purpose, it may be called. As first noticed, this *Amœba* was limaciform, $\frac{1}{8}$ of a millimetre long, with a number of conical pseudopods projecting from the front broader end, which was $\frac{1}{8}$ of a mm. wide. The creature contained a number of spherical food vacuoles with sienna-colored contents, a large diatome filled with endochrome, besides several clear vacuoles, a posterior contractile vesicle, and the usual granular entosarc. The *A. limax* approached and came into contact with the motionless *A. verrucosa*. Moving to the right, it left a long finger-like pseudopod curved around its lower half, and then extended a similar one around the upper half until it met the first pseudopod. After a few moments the ends of the two pseudopods actually became connate (the second time he had observed this phenomenon), and the *A. verrucosa* was inclosed

in the embrace of the *A. limax*. The latter assumed a perfectly circular outline, and after awhile a uniformly smooth surface; but the central contractile vesicle remained in the same condition, nor did he once observe it enlarge or collapse. The *A. limax* now moved away with its new capture, and after a short time what had been the head end contracted, became wrinkled and villous in appearance, while from what had been the tail end a number (ten) of conical pseudopods projected. The *A. verrucosa* assumed an oval form, and the contractile vesicle became indistinct, without collapsing. Moving on, the *A. limax* became more slug-like in shape, measuring about $\frac{1}{4}$ m. long, by $\frac{1}{8}$ m. broad. The *A. verrucosa* now appeared inclosed in a large oval clear vacuole, was constricted so as to be gourd-shaped, and had lost all traces of its contractile vesicle. Subsequently, the *A. verrucosa* was doubled upon itself; and at this period, the *A. limax* discharged from one side of the tail end, the siliceous case of the diatome, which now contained only a shrivelled cord of endochrome. Later the *A. verrucosa* was broken up into five spherical granular balls, and these gradually became obscured and apparently diffused among the granular contents of the entosarc of the *A. limax*. At one moment the five granular balls derived from the *A. verrucosa* appeared to be contained in three vacuoles, and the *A. limax* had a more contracted and radiate form, and then measured $\frac{1}{2}$ m. in diameter.

The observation, from the time of the seizure of the *A. verrucosa* to its digestion, or disappearance among the granular matter of the entosarc of the *A. limax*, occupied seven hours.

From naked Amœbæ, the test protected rhizopods were no doubt evolved, and it is a curious sight to observe them swallowed, home and all, to be digested out of their home, just as the contents of diatomes are digested. It was also interesting to observe the cannibal Amœba swallowing another, and appropriating its structure to its own, just as we might do a piece of flesh, completely, without there being any excrementitious matter to be voided.

Habits of Formica rufa.—Mr. McCook, speaking of the habits of *Formica rufa*, stated that the ants descending the tree-paths, with abdomens swollen with honey-dew (called by him *Repletes*), were arrested at the foot of the trees by workers from the hill seeking food. Galleries communicating with the hill, opened at these points, around and in which numbers of ants were huddled engaged in drawing or bestowing rations of honey-dew. Similar commissary stations were found under the stones near by. The replete reared upon her hind legs, and placed her mouth to the mouth of the pensioner, who assumed the same rampant posture. Frequently two, sometimes three pensioners were thus fed at once by one replete. Apparently the workers engaged in building at the hill and galleries